What is claimed is:

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1   A method for minimizing total cost of interaction among components of a computer program, each of said components being characterized by at least one implementation property, said method comprising the steps of:

a) carrying out at least a partial run of said program;

10   b) monitoring said at least partial run of the program to measure an amount of interaction between each pair of components;

c) determining a cost of interaction between each pair of interacting components;

d) determining a choice of implementation properties which minimizes total cost

15   of said at least partial run;

e) assigning said choice of said implementation properties to said components for a subsequent at least partial run of said program.

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2.   A method as set forth in Claim 1, said implementation property comprising a choice of string representation of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; said cost of interaction comprising a function of said

25   frequency and a cost of converting any differing string representations of said pair to a common string representation. .

3.   A method as set forth in Claim 2, wherein at least one string

representation is selected from ASCII, UNICODE, and EBCDIC.

4.   A method as set forth in Claim 1, said implementation property comprising a choice of data structure of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; said cost of interaction comprising a function of said frequency and a cost of converting any differing choices of data structures of said pair to a common choice of data structure.

5.   A method as set forth in Claim 3, wherein at least one data structure is selected from hash, tree, and compressed data structures.

6.   A method as set forth in Claim 1, wherein the step (d) of determining the choice is carried out by building a graph with nodes representing program components and edges that join adjacent nodes representing interaction therebetween, each edge being characterized by a cost of each interaction, then using a graph cutting technique to find a minimum cut of the graph.

7.   A computer readable medium including computer instructions for carrying out a method for minimizing total cost of interaction among components of a computer program running on a computer system, said method comprising the steps of:

a) carrying out at least a partial run of said program;

b) monitoring said at least partial run of the program to measure an amount of interaction between each pair of components;

c) determining a cost of interaction between each pair of interacting components;

d) determining a choice of implementation properties which minimizes total cost of said at least partial run;

e) assigning said choice of said implementation properties to said components for a subsequent at least partial run of said program.

8. A computer readable medium as set forth in Claim 7, said implementation property comprising a choice of string representation of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; said cost of interaction comprising a function of said frequency and a cost of converting any differing string representations of said pair to a common string representation.

9. A computer readable medium as set forth in Claim 8, wherein at least one string representation is selected from ASCII, UNICODE, and EBCDIC.

10. A computer readable medium as set forth in Claim 7, said implementation property comprising a choice of data structure of a component, said amount of interaction measured in step (b) comprising a frequency of interaction between each pair of interacting components; said cost of interaction comprising a function of said frequency and a cost of converting any differing choices of data structures of said pair to a common choice of data structure.

11. A computer readable medium as set forth in Claim 10, wherein at least one data structure is selected from hash, tree, and compressed data structures.

12. A computer readable medium as set forth in Claim 7 wherein the step (d) of determining the choice is carried out by building a graph with nodes

representing program components and edges that join adjacent nodes representing interaction therebetween, each edge being characterized by a cost of each interaction, then using a graph cutting technique to find a minimum cut of the graph.

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